



SOCIAL CAPITAL ROLE IN ADDRESSING AGING PARENTS LONELINESS

Mohamed Buheji

International Inspiration Economy Project - Bahrain

ABSTRACT

The challenges of caring for aging parents have different inputs and outputs; however, the one common factor that appears in both ends is the challenge of maintaining their social capital, regardless of their condition. In this paper, the social capital relevant to loneliness is addressed. The author, as a close carer, reviews the work that helped in addressing social capital maintenance, besides the mitigation mechanisms of both loneliness and its impact on cognitive decline.

Based on the strategic framework that is synthesized from the literature, a communication model is proposed for close carers and the concerned stakeholders. The framework and the communication model mitigate the risks of loneliness by optimizing the social capital of the aging parents, and raising the best approaches for quality of life.

Keywords: Social Capital, Loneliness, Aging Parents, Cognitive Decline, Communication Model.

Cite this Article: Mohamed Buheji, Social Capital Role in Addressing Aging Parents Loneliness, *International Journal of Management (IJM)*, 12(11), 2021, pp. 17-26.
<https://iaeme.com/Home/issue/IJM?Volume=12&Issue=11>

1. INTRODUCTION

Global aging and the fact of prolonged life of the different world communities has been increasing more rapidly than the capacity of these communities to provide good health and well-being. Recent studies have found that the loss of social capital can be a source of the aging population and aging parent loneliness, which is the main cause of the decline of both physical and mental health, besides the overall feeling of well-being. Buheji and Buheji (2020), WHO (2021).

Loneliness in aging parents was found to prompt coronary heart disease, stroke, and dementia. The prevalence of loneliness varies across different countries according to different assessment tools and study samples. In this study, we focus on the relation between social capital and loneliness, where the impact of each other is closely studied. Hawkey et al. (2008), Victor et al. (2005).

A Chinese Longitudinal Healthy Longevity Survey (CLHLS) revealed that about 23% of older men and 30% of older women experienced loneliness, Zhou et al. (2019). In certain countries as Singapore and Finland, more than 23% of older people suffer from frequent chronic loneliness, Valtorta et al. (2016). Nyqvist et al. (2016), Jylhä et al. (2004).

Recent studies show that 25 European countries have 20–34% of their older people reported to be lonely, while only 25–29% in the USA and approximately the same in Latin America. Other studies showed that only 18% and 3.8% consequently of the old people in India and China. Hawkey et al. (2008)

In this research, we investigate the loneliness risks factor and the role of the constructs of the social capital. The age and loneliness curve is explained along with the possibility of integrating it with social capital. Then, the research gradually takes a deeper focus on how the COVID-19 pandemic, besides aging, is causing the rapid destruction of the social capital of older people. WHO (2021)

The author reviews the efforts taken towards mitigating the impact of the social capital deterioration in aging parents by focusing on what accelerate such loss. The author warns about the increase of social pain among aging parents during the pandemic specifically and hence calls for the promotion of close carers rather than nursing care homes. The role of socioeconomic challenges in social capital decline and its behavioural effects, especially during global emergencies or disasters, are also discussed. Buheji and Ahmed (2021).

The paper suggests setting up social capital mitigation framework that helps in raising the capacity for maintaining such capital among our aging parents. The framework focuses on the role of social capital mechanisms in building aging parents tolerance capacity that leads to a clearer strategy for mitigating the cognitive decline. Buheji and Buheji (2020). Mourao et al. (2016)

2. LITERATURE REVIEW

2.1. Loneliness Risks Factor

There are different risk factors of loneliness that can be prevented. For example, we know now that risks of loneliness would be more in old females, especially those in the low levels of educational attainment, and socioeconomic status residing in rural areas. Additional loneliness risks factors were found to be directly, or indirectly related to social capital. Physical inactivity, living alone, post-retirement, and loss of companions, or friends were also found to have a negative impact on SC. Pinquart and Sörensen (2003), Findlay (2003).

Loneliness is a subjective and negative feeling that may be the consequence of dissatisfaction with an individual's social relations and unsatisfied social needs, Arslantas et al. (2015). In the last decades, an increasing volume of studies concluded that more engagement in activities and good relationships with social contact could benefit older adults and reduce loneliness.

2.2. Role of the Constructs of the Social Capital

Social capital has a collection of constructs measured by social contacts, participation, trust, and sense of belonging. In contrast, lower trust was associated with loneliness among the oldest age group. In a study conducted in 14 European countries, social capital, including regular social participation, was linked to a decreased experience of loneliness and a reduction in the impact of loneliness in low-income families, Nyqvist et al. (2016).

A prior study found that social capital practices, such as social bonding, social bridging, and social participation, decreased the experiencing of loneliness among rural old widowed people in China, Jiang et al. (2020).

Results confirmed the role of social capital in preserving the emotional health of older people. Similarly, Nyqvist et al. (2016) found that the infrequent social connection with neighbours had an increased likelihood of being lonely among older people aged 65–80 years in Western Finland. Results from the fifth wave of the Survey of Health, Aging and Retirement in Europe (SHARE) also concluded that more social participation was a protective factor for loneliness and mitigated the impact of unfavorable socioeconomic status among older people. Niedzwiedz et al. (2016)

Murayama et al. (2019) suggested that forming and building reciprocal connections or relationships with others in the SC could alleviate the impact of some mental health issues, including loneliness. SC could come in the form of social support, trust, cohesion, and loneliness. Lauder et al. (2006)

2.3. Integration of Social Capital and Loneliness

Nyqvist et al. (2013) social capital and loneliness are context-dependent (i.e., geographical or living environment). Among the very old, the link between social capital resources and loneliness is also highly influenced by health status.

Frequent loneliness is common among the general adult population and could be seen as a public health issue. Our findings imply that low social capital, especially in terms of low trust, maybe a risk factor for loneliness. Frequent loneliness (defined as experienced often or sometimes) was higher among younger people (39.5 %) compared to older people (27.3 %). Low levels of trust were linked to loneliness in all four age groups. The association between other aspects of social capital and loneliness varied across age groups. Nyqvist et al. (2016)

2.4. Destruction of Social Capital of the Older People During the Pandemic

Social isolation and loneliness, due to the COVID-19 pandemic, destroyed the social capital of the older people, and this created a negative impact on their quality of life and health, Tomaka et al. (2006). Such destruction has consequences on the age parents' mental and physical health. The pandemic accelerated the face-to-face meetings, or converted many of these meetings, if any, to being digital. WHO (2021)

2.5. Mitigating the Acceleration of Social Capital Loss Impact on Aging Parents

2.5.1. Age and Loneliness Curve

It is not clear whether loneliness increases or decreases with age. Some studies show a U-shaped curve along the life course, loneliness being more prevalent at younger and older ages. Others suggest a steady decrease in loneliness through life, sometimes with an increase after 75 years. Yet others suggest that the relation between loneliness and age is non-linear and fluctuates during our lifetime. Hawkley et al. (2008)

Social isolation and loneliness shorten lives where premature mortality can reach to 29% of the cases. Social isolation and loneliness affect other well-established risk factors such as obesity, lack of physical activity, smoking, and other forms of substance abuse, Tomaka et al. (2006). This is also associated with such as cardiovascular disease and stroke. All these conditions enhance cognitive decline and lead to other mental health conditions such as dementia, depression, anxiety, and may lead to suicidal ideation. Buheji (2021, 2020)

2.5.2. Social Capital Path

There are two main paths that can help mitigate the rapid deterioration of the age parents social capital, one is based on prevention, and the other is based on interventions:

a. Social Capital Intervention Path

Cognitive behaviour therapy should be promoted in all public health, primary care and be part of social workers, family psychologists, besides the health visitors program.

b. Social Capital Protection Path

In order to protect our social capital, we need more sustainability in the efforts of enhancing the age parents' both formal and informal social skills. This can be achieved by their capacity to travel, get involved with the lifelong learning program, besides improving their digital inclusion.

Today, more than ever, we need to promote more age-friendly practices among young generations. More programs need to be sponsored by a partnership with public sector entities that address ageism inequality.

2.6. Risks of Losing Aging Parents Social Capital

The significance of social capital and its role in maintaining the well-being and health of older people have been emphasized by the work of Chen et al. (2014). Social capital refers to a concept that describes social relations at individual or community levels that can be obtained through mutual interaction within a neighbourhood, community, or society.

The risks of losing our social capital at older age result in more social isolation, or mental health diseases that start with loneliness and anxiety, and there are physical health risks too. Buheji (2021, 2020)

Loss of SC was found to enhance cardiovascular diseases, strokes, diabetes, cognitive decline, dementia, depression, besides suicide. SC decline leads to a reduction in the aging parents' quality of life. Buheji and Buheji (2020)

2.7. What enhances Aging Parents Social Capital Loss?

SC reserve needs to be taken care of during major life transitions and disruptive life events, such as during the time of retirement, loss of a spouse, loss of friends, growth, and independence of children, or migration of close family members. SC is also important as the aging parents' lose the freedom of mobility, or in cases of disability. Buheji and Ahmed (2021)

The COVID-19 pandemic has increased the SC relations deterioration due to the physical distancing measures. To avoid this impact on all the generations and specifically the old people, some countries as UK and Japan appointed "loneliness minister," which focused on implementing a strategy for tackling loneliness and its consequences. Lauder et al. (2006)

Other analyses of different research indicate that functional ability was the most determinant factor related to loneliness, besides the marriage status and a number of diseases. These had their influence on lowering the level of trust and the level of social participation, which lead to experiencing loneliness.

In the USA, a guideline for future public policies was established called 'a Decade of Healthy Aging 2021–2030. The guideline includes four interconnected action areas for safeguarding the health and well-being of older people, their families, and their communities: (i) change how we think, feel and act towards age and aging; (ii) ensure that communities foster the abilities of older people; (iii) deliver integrated care and primary health services tailored to older people; and (iv) ensure access to long-term care for older people.

2.8. Role of Socioeconomic Challenges in Social Capital Decline

Besides the fact that most of the world population is aging, the speed of the turbulent socioeconomic changes is also playing a role in SC decline. This is due to their changes in the

composition of their households and style of living. The delay in marriage and the decreased in fertility; are changing the patterns of intergeneration dialogue. The instability of many families due to issues as divorce; difference in the level of education between males and female and high youth migration, all participate in disruptions of the social capital of the aging parents. Buheji and Buheji (2020)

Not only the statistics of the western countries, but even most of the developing and emerging economies too, shows that aging parents are living more alone, and the intergenerational residence has decreased dramatically.

In many less developed countries, despite the persistence of traditional family structures and cultural norms that favor multi-generational households, a slow shift is occurring towards smaller families and different types of households, including living alone. This could be seen clearly in rich developing countries, as the Gulf Cooperation Council states.

There are three mechanisms that enhance social isolation and loneliness among aging parents. Excess of stress reactivity, and, in the absence of the stress-buffering effect of social support, the physiological systems of lonely and isolated individuals may absorb more of the stressors encountered in daily life. Inadequate or inefficient physiological repair and maintenance processes are also another mechanism source that leads to social isolation and loneliness. The quality and quantity of sleep, also found to influence the variety of physical health and mental conditions of the aging parents. Buheji and Buheji (2020)

2.9. Managing Social Pain

Hikichi et al. (2017) warned about the risks of cognitive impairment due to social capital, as it has mitigated the adverse effects of natural disasters or emergencies, on cognitive decline.

Social isolation and loneliness are called today the “social pain”. This pain represents the discrepancy between the desired and actual social connections, i.e., the social capital. “Social pain” can exist even when we, the aging parent, have a small network of the next kin, or the non-kin, but without any frequent interactions. However, some studies confirm not all the aging parents who are socially isolated are necessarily lonely, since their loneliness also depends on their own culture, and relationships expectations. WHO (2021)

2.10. The Behavioural Effect of Social Capital Loss

Evidence indicates that social isolation and loneliness lead to behavioural risk factors, such as lower physical activity, poorer diet, poor adherence to medical treatments, and more smoking and alcohol consumption.

Other effect goes towards intrinsic capacities, such as the negative effect on sensory impairment and hearing loss, which increase the risks of psychiatric disorders such as depression, anxiety, and dementia. Certain personality traits – such as neuroticism (i.e., negative affect), disagreeableness, and low levels of conscientiousness – increase the risk of loneliness, and these are partly genetically determined. Buheji (2021, 2020)

2.11. Social Capital During Global Emergencies or Disasters

Hikichi et al. (2017) Previous studies have shown that disaster experiences are linked to a heightened risk of cognitive decline among affected older individuals in the aftermath of the 2011 Great East Japan Earthquake as well as Hurricanes Katrina and Rita. Previous studies also suggested that social capital is protectively associated with depression and post-traumatic stress disorder following disasters. Our study extends the evidence that social capital buffers the effects of disaster experiences on cognitive decline. This study shows that informal socializing

and social participation can buffer the adverse effect of housing damage on cognitive function among older survivors of natural disasters. Mourao et al. (2016)

Improved informal socializing and social participation reduce the risk of cognitive decline due to housing damage in the aftermath of natural disasters. Interventions to promote civic participation should be tried to promote the cognitive resilience of older survivors. WHO (2021)

3. METHODOLOGY

Based on the literature reviewed, a framework for mitigating the impact of social capital loss and specifically those that lead to loneliness is proposed.

Based on the earlier work of the researcher in Buheji et al. (2020), an upgrade to a communication model is proposed in order to operationalize the social capital and reflect the proposed strategic framework. The communication model could be a good reference to both practitioners and researchers for future evaluation and development.

4. SETTING UP SOCIAL CAPITAL MITIGATION FRAMEWORK

4.1 Evaluating the Capacity for Maintaining the Social Capital Among Our Aging Parents

Maintaining cognitive functioning, as using short-term memory, keeping up the orientation, and capacity to develop communication, is considered a very important measure for the health status of the SC. In order to keep the best cognitive functioning, aging parents need to maintain frequent contact with their friends and neighbours

4.2. Optimizing the role of Social Capital Mechanisms in Building Aging Parents Tolerance Capacity

There are specific mechanisms that can help social capital in building resilience. So, if the SC reciprocity is optimized, the aging parents could be able more use these choices as an instrumental and emotional source. The other type of mechanism is the strong community bonds and social solidarity. These bonds of solidarity help for the speedier reconstruction of stricken communities.

The SC of aging parents mitigates the effects that lead to cognitive decline in the aftermath of a pandemic, aging risks consequences, or other causes.

4.3. Strategy for Mitigating the Impact of Loss of Social Capital among Aging Parents

In order to develop a strategy that would mitigate the impact of SC loss among aging parents, a scale-up for effective interventions must be deployed to reduce the social isolation that leads to loneliness.

We know now that the continuous loss of SC may lead to serious consequences on the longevity and may change the social norms that prevent essential social connections. Aging parents could be encouraged to be engaged in more social activities. Another means for mitigating SC loss is that aging parents should be encouraged to participate in formal/informal groups, including community developments, hobbies and skills enhancement, voluntary activities, and services. Other cultural, knowledge sharing, storytelling, and physical education activities provide even better lifelong learning opportunities for the aging parents to meet with other social partners and to share life experiences and exchange interests.

4.4. Proposed Communication Model for Maintaining Aging Parents Social Capital and Mitigation of the Risks of their Loneliness

Based on the above framework, and the previous work of Buheji et al. (2020), Figure (1) is proposed to represent the communication model for maintaining aging parents' social capital and mitigating the risks of their loneliness.

The model targets to build resilient aging parents that would mitigate the risks of both cognitive and structural capital loss, besides building different alternatives for social capital maintenance. The communication model follows optimization mechanisms that help in more resilience in aging parents: accessibility, maintenance of expertise, social connectedness, functionality, engagement, and capacity to interact.

The author visualizes that the outcome of such a communication model, as seen by the synthesis of the literature, would generate a variety of pathways that could optimize and maintain the social capital reciprocity, including optimizing contacts with friends and neighbours. In order to establish even further resilient cognitive functioning approaches, the aging parents should be encouraged to share life experiences and exchange interests through social activities networks and lifelong learning activities.

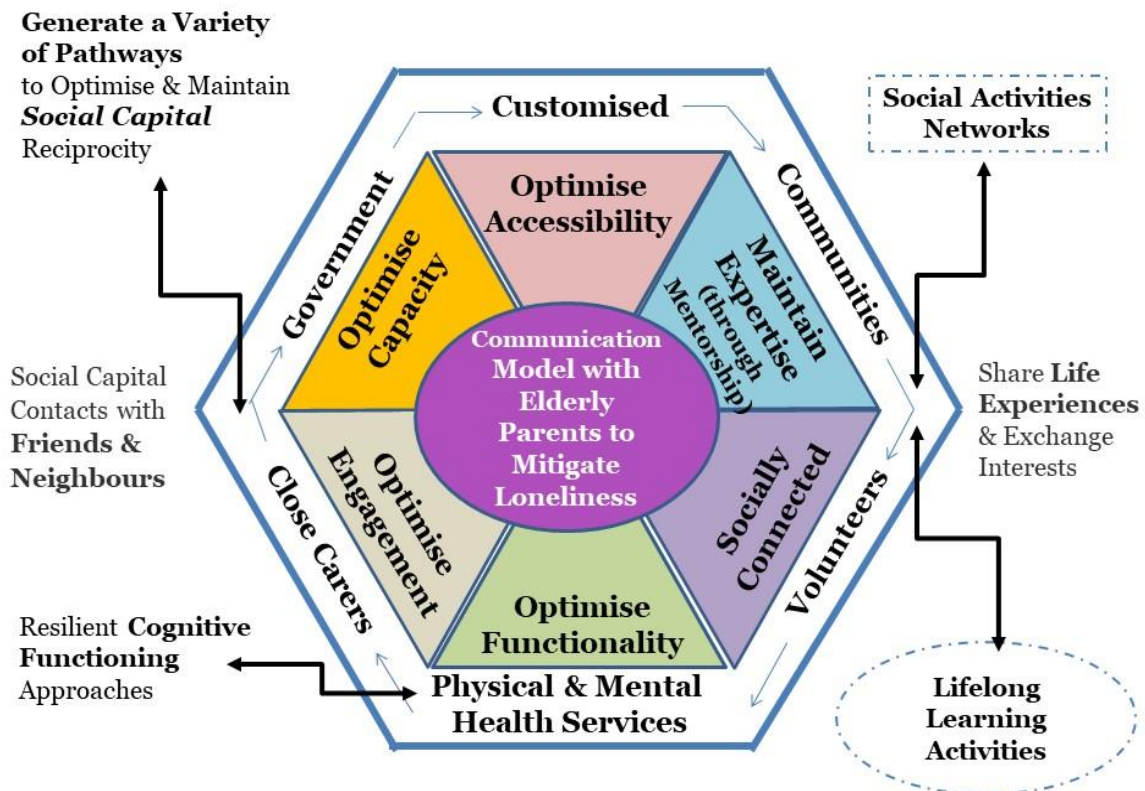


Figure 1 Communication Model for Maintaining Aging Parents Social Capital

Under this framework strategy; children, relatives, friends, and neighbours are encouraged to have more frequent interactions and communications with the aging parents more than just caring for them. The feeling of the aging parent of their capacity to maintain a good social relationship, promote and improve the quality of social connections, could reduce their chance of developing loneliness.

5. DISCUSSION AND CONCLUSION

5.1. Social Capital and its Role in Mitigating Cognitive Decline in Aging Parents

Social capital can be measured by both cognitive dimension (perceptions of community social cohesion), and structural dimension (informal socializing and social participation). Improved informal socializing and social participation reduce the risk of cognitive decline in the aftermath of a global emergency or natural disaster or in situations similar to the COVID-19 pandemic. Interventions to promote civic participation should be tried to promote the cognitive resilience of older survivors.

A particular concern for older survivors is the potential risk of cognitive decline. We have previously reported that the experience of disaster— particularly housing damage—is associated with an increased risk of cognitive decline among older survivors. In turn, a wealth of epidemiological evidence suggests that the preservation of cognitive function in older individuals is dependent on their ability to maintain social connections in the community

Social capital is often separated into cognitive and structural components. Cognitive SC refers to how people perceive social relations in their community, i.e., trust of others, mutual help, and community attachment. Structural SC captures what people actually do, i.e., informal socializing with their neighbours and participating in social activities.

Another reason may be that our adjusted model included several variables such as demographic and health-related as covariates, which were associated with social capital and loneliness. As a result, the association between social support, trust, and cohesion with loneliness was attenuated or even became non-significant. However, more research is still warranted to further verify our results in the future.

Bai et al. (2021) noted that the interactive effect of different social capital dimensions on loneliness, suggesting that the risk for suffering loneliness was greatest in older people limited in functional ability, with less trust, less social connection, and less social participation. The social capital is associated with loneliness in older adults, found to be highly influenced, especially in terms of the trust, social connection, and social participation may be significant for alleviating loneliness in later life.

5.2. Promotion of Close Carers rather than Nursing Care Homes to Aging Parents Mitigate Loneliness

A review of the studies in this research shows that ageing parents who are placed in residential or nursing care homes were feeling lonely. More studies are recommended for accurately estimating the aging parents' social capital and/or loneliness in the Arab and Developing Countries so that it could be compared with low- and middle-income countries.

Based on the reviewed earlier publications, the strategy and communication model proposed in Figure (1) recommends that aging parents should have sustenance of reciprocal relationships, programs, and activities. Such activities should be designed to maintain the aging parents' willingness to actively work as if trying to provide help to other people of the same age.

The communication model proposed to encourage close carers as relatives, friends, and neighbours to be part of aging parents lifetime SC maintenance process, Buheji and Ahmed (2021). To optimize the SC capacity in the prevention of loneliness and maintain good emotional health, more attention should be paid to aging parents who report limitations in functional ability. The limitations of the functional or cognitive abilities should trigger review of the aging parent volume of trust with surroundings, including the trust towards their potential carers. Social participation, and social connections should be carried out without many limitations.

5.3. Final Words

The implication of this research is that it calls for collective interventions towards aging parents' social capital to reduce their cognitive decline and besides alleviate the impact of loneliness. The paper collected all the observations about the relationship between social capital and loneliness among aging parents and how to enhance their social participation.

Despite the limitations of not covering the type of social connections, the paper brings different approaches and/or mechanisms that would be significant in designing intervention programs that would prevent or reduce the incidences or levels of our aging parents' loneliness.

REFERENCES

- [1] Arslantas H, Adana F, Abacigil Ergin F, Kayar D, Acar G. (2015) Loneliness in elderly people, associated factors and its correlation with quality of life: a field study from Western Turkey. *Iran J Public Health*. 44(1):43–50.
- [2] Bai, Z; Wang, Z; Shao, T; Qin, X; Hu, Z (2021) Association between social capital and loneliness among older adults: a cross-sectional study in Anhui Province, China. *BMC Geriatrics*, Volume 21, 26
- [3] Buheji, M (2020) Fluid Thinking for Aging Parents – Compensating the Psychological Risks of COVID-19 Pandemic Using Gamification, *International Journal of Psychology and Behavioral Sciences*, Vol. 10 No. 4, pp. 93-99.
- [4] Buheji, M (2021) Foresighting the Transformation Requirements towards ‘Aging Economy’, *International Journal of Management (IJM)*, 12(9), pp. 123-135.
- [5] Buheji, M and Ahmed, D (2021) Notes from Living as A Close Carer with an Elderly Parent-Case Study and Observations. *International Journal of Management (IJM)*, Volume 12, Issue 6, June 2021, pp. 131-143.
- [6] Buheji, M and Buheji, A (2020) Intelligent Living with ‘Aging Parents’ During COVID-19 Pandemic. *International Journal of Psychology and Behavioral Sciences*; 10(3): 76-83.
- [7] Buheji, M; Al-Nakash, A; Cunha, K; Rocha, R; da Silva, M; Yein, T; Al-Salman, J (2020) Mitigation of Risks of Complications and Deaths among the Elderly during Pandemics-Designing an Integrated Communication Framework Based on the Accumulated Experience of the Elderly Risks during the COVID-19 First Wave, *American Journal of Medicine and Medical Sciences*, Vol. 10 No. 7, pp. 494-502.
- [8] Findlay RA. (2003) Interventions to reduce social isolation amongst older people: where is the evidence? *Aging Soc*. 23(5):647–58.
- [9] Hawkley LC, Hughes ME, Waite LJ, Masi CM, Thisted RA, Cacioppo JT. (2008) From social structural factors to perceptions of relationship quality and loneliness: The Chicago health, aging, and social relations study. *J Gerontol B Psychol Sci Soc Sci*. 63(6): S375–84.
- [10] Hikichi, H; Tsuboya, T; Aida, J; Matsuyama, Y; Kondo, K; Subramanian, S; Kawachi, I (2017) Social capital and cognitive decline in the aftermath of a natural disaster: a natural experiment from the 2011 Great East Japan Earthquake and Tsunami. *Lancet Planet Health*; 1: e105–13. www.thelancet.com/planetary-health
- [11] Jiang D, Hou Y, Hao J, Zhou J, Jiang J, Wang Q (2020) Association between personal social capital and loneliness among widowed older people. *Int J Environ Res Public Health*. 17(16):5799.

- [12] Jylhä M. (2004) Old Age and loneliness: cross-sectional and longitudinal analyses in the Tampere Longitudinal Study on Aging. *Can J Aging*. 23:157–68.
- [13] Lauder W, Mummery K, Sharkey S (2006) Social capital, age and religiosity in people who are lonely. *J Clin Nurs*. 15(3):334–40.
- [14] Mourao RJ, Mansur G, Malloy-Diniz LF, Castro Costa E, Diniz BS. (2016) Depressive symptoms increase the risk of progression to dementia in subjects with mild cognitive impairment: systematic review and meta-analysis. *Int J Geriatr Psychiatry*; 31: 905–11.
- [15] Murayama Y, Murayama H, Hasebe M, Yamaguchi J, Fujiwara Y. (2019) The impact of intergenerational programs on social capital in Japan: a randomized population-based cross-sectional study. *BMC Public Health*. 19(1):156.
- [16] Niedzwiedz CL, Richardson EA, Tunstall H, Shortt NK, Mitchell RJ, Pearce JR. (2016) The relationship between wealth and loneliness among older people across Europe: is social participation protective? *Prev Med*. 91:24–31.
- [17] Nyqvist F, Cattán M, Andersson L, Forsman AK, (2013) Gustafson Y. Social Capital and Loneliness Among the Very Old Living at Home and in Institutional Settings: A Comparative Study. *Journal of Aging and Health*. 25(6):1013-1035.
- [18] Nyqvist F, Victor CR, Forsman AK, Cattán M (2016) The association between social capital and loneliness in different age groups: a population-based study in Western Finland. *BMC Public Health*. 16:542.
- [19] Nyqvist F, Victor CR, Forsman AK, Cattán M. (2016) The association between social capital and loneliness in different age groups: a population-based study in Western Finland. *BMC Public Health*. Jul 11; 16:542.
- [20] Pinquart M, Sörensen S. (2003) Risk factors for loneliness in adulthood and old age-a meta-analysis. In: *Shohov SP, editor. Advances in psychology research*. New York: Nova. p. 111–43.
- [21] Tomaka J, Thompson S, Palacios R. (2006) The relation of social isolation, loneliness, and social support to disease outcomes among the elderly. *J Aging Health*. 18:359–84.
- [22] Valtorta NK, Kanaan M, Gilbody S, Ronzi S, Hanratty B. (2016) Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. *Heart*. 102(13):1009–16.
- [23] Victor CR, Scambler SJ, Bowling A, Bond J. (2005) The prevalence of, and risk factors for, loneliness in later life: a survey of older people in Great Britain. *Aging Soc*. 25:357–75.
- [24] WHO (2021) Social isolation and loneliness among older people, advocacy brief. Geneva: *World Health Organization*.
- [25] Zhou Z, Mao F, Zhang W, Towne DS, Wang P, Fang Y. (2019) The association between loneliness and cognitive impairment among older men and women in China: a Nationwide longitudinal study. *Int J Environ Res Public Health*. 16(16):2887.